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ABSTRACT

This unit of instruction for grades 4-6 is one of a series of curriculum units referred to as the Interdisciplinary Unit. Its purpose is to allow the individual teacher to expose the students to many experiences, ideas, and applications based on their environment (in this case, Kentucky). Each lesson is built on two basic concepts, each balancing the other. One concept is a positive statement and the other, its opposite. Behavioral objectives are given for each lesson. Each lesson is developed in a three-part sequence--showing, discussing, and applying the ideas and concepts of that lesson. The unit is considered as a model on which to build and expand, both for teachers and students. The basic concepts for this unit include those related to sights and sounds as they affect the quality of the environment. (EB)

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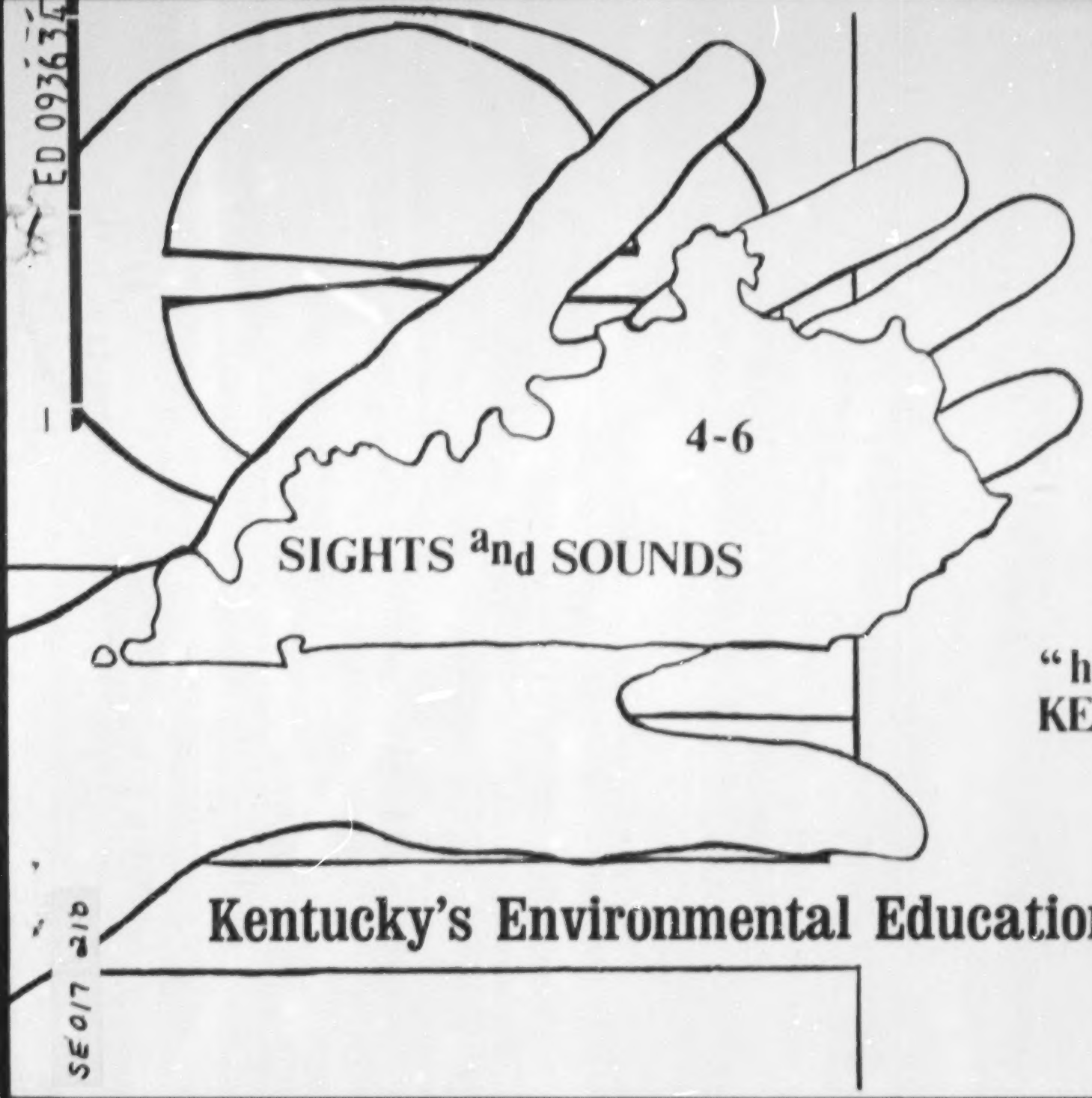

4-6

SIGHTS and SOUNDS

"hands on KENTUCKY"

Kentucky's Environmental Education Program

SE 017 210

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF EDUCATION
FRANKFORT, KY. 40601

LYMAN V. GINGER
SUPERINTENDENT OF PUBLIC INSTRUCTION

As our pace of living becomes more complicated, our people are turning more and more to the environment for refuge and relaxation. Unfortunately, many of us are finding that our frantic utilization of natural resources, our wasteful life styles, and our neglect of balances that exist in our world has taken its toll in the lessening of the quality of our environment. Rather than refuge we find refuse, and rather than relaxation we experience the disgust and disappointment of pollution created by our own neglect and apathy. This disgust and disappointment is only heightened by our feelings of helplessness in solving the problems.

Education has a key role to play in assisting our citizenry with these conflicts. Education, as the means of developing knowledgeable citizens of the future, has a responsibility to teach the students of today the concepts they will need to function in the world of tomorrow. Local, state, and national priorities are being established for environmental utilization and protection. Awareness and a desire to protect and improve the quality of the environment will be essential to survival in tomorrow's world. The program developed by the Kentucky Department of Education to foster this awareness and to motivate towards action is environmental education. We feel that Kentucky's Environmental Education Program (KEEP) offers a beginning for school systems and teachers throughout our Commonwealth. We encourage teachers to use the curriculum materials developed for environmental education as a first step as a model for the development of their own curriculum centered around their individual school and community. Environmental education is one approach towards meeting the new challenges of modern education, and we invite all of Kentucky to join the Kentucky Department of Education in meeting these challenges.

Lyman V. Ginger
Superintendent of Public Instruction

FOREWORD

The impact of decisions made in today's society is seldom limited to the present time or present generations. Rather, today's decisions are often of such a crucial nature that their impact will be felt by many generations yet unborn. In no area will the impact be greater felt than in the realm of the environment. Education has a responsibility in the initiation of wise decision making with respect to the environment. As an effort towards meeting this responsibility, the Kentucky Department of Education has begun a program in Environmental Education. This program visualizes the environment both as the medium for teaching the academic aesthetic disciplines and as an area of study within these disciplines.

We feel that this program is applicable to all segments of Kentucky communities, and encourage educators within these communities to adapt these model curriculum units to local circumstances and environments. We are grateful to the many individuals who have assisted in the development of these units and hope that this material will serve as a motivating element in the future development of additional units and programs throughout the Commonwealth.

Don C. Bale, Assistant
Superintendent for Instruction
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ENVIRONMENTAL EDUCATION

INTRODUCTION TO INTERDISCIPLINARY UNITS

Environmental Education is one of the newest areas in the school curriculum. Not only is it one of the newest areas, it is also one of the most comprehensive. The concepts of Environmental Education branch into almost every subject area. It was for this reason, the Kentucky Department of Education developed the Interdisciplinary Unit. Its purpose is to allow the individual teacher to expose the students of Kentucky to many experiences, ideas, and applications based on their environment. Not only is the Interdisciplinary Unit designed for a broader exposure, but it is designed to allow the students to discover, and to experience the results of good and bad environmental use. If we can provide the medium and opportunity for choice and decision making in our schools, then we can be confident that when the students are beyond our walls, they will be prepared to make similar choices and decisions.

Structure of the Interdisciplinary Unit:
The structure of the interdisciplinary units in environmental education is very simple. Each lesson is built on two basic concepts. These concepts balance each other. One concept is a positive statement and the other is its opposite. By building each lesson on opposing, balancing concepts, the total picture of the environment is shown. Both sides of the environmental coin are exposed. To help clarify and to bring out additional ideas, each set of basic concepts are supplemented by supportive concepts. These supportive concepts are listed next to the activities with which they are most applicable. The same supportive concept may be repeated several times throughout a lesson. These concepts are applicable to several of the activities.

Before each lesson, are the behavioral objectives of that lesson. These objectives are the goals for the student. If he successfully completes the lesson, he will have achieved the goals. In order to assist him in reaching these goals, the lessons were structured in a sequence that will assist in his learning.

Each lesson is developed in a three-part sequence. The sequence follows a pattern of showing, discussing, and applying the ideas and concepts of that lesson.

SHOW:
The showing sequence of each lesson is divided into six alphabetical letters. Each letter denotes an activity or activities to provide the student with an experience connected with the basic concepts. The show sequence provides the foundation of the lesson. Each experience and its letter of the alphabet is explained as follows:

a. This is a direct experience with the concept. It allows the student to be a part of the concept. It is the most valuable of the six experiences.

b. This is a simulated experience. It requires the student to use imagination and many times uses the role-playing technique.

c. This is an audio-visual experience. Films are used with this experience.

d. This is a visual experience. It allows the student to identify the concept by sight. Magazine pictures are often used.

e. This is an audio experience. It allows the student to form a mental image based on sound. Records and tape recordings are the best sources.

f. This is the abstract experience. It consists of reading, lectures, graphs, and charts. It is the least valuable experience unless supported by the ones above it.

When possible, all of the experiences should be presented to the students. If one must be eliminated, expose the students to the remainder. The show sequence is the basis for the second lesson sequence, discussing.

DISCUSS:
The discussing sequence of each lesson is also divided alphabetically. Each letter of the alphabet corresponds with the same letter in the showing sequence. Each discussion segment is a series of questions to be directed to the students. Their purpose is to assist the student in expanding his observations and awareness about his experiences. They follow the same order as the showing segments. After the student has experienced the concept in a variety of ways, and has discussed these experiences, he is prepared to advance to the final lesson sequence, applying.

APPLY:
The final sequence, applying, is divided by discipline areas. In a self-contained classroom, the teacher could use all of the activities for the disciplines. The activities are designed to allow the students to use the concepts they have experienced and discussed. It allows them to make decisions and to gather information. It is the final segment, the segment that reinforces all others, and the segment that produces the tangible results of the students' efforts.

Many of the questions and activities in the Interdisciplinary Units are "open-ended," having no correct or incorrect answer. It is through a discovery approach that the students will arrive at their own answers. There are many additional activities that interested teachers can provide for their students. The Interdisciplinary Unit is not a comprehensive encyclopedia, listing all things. Additions are requested. New activities should be designed by the teacher and the students. This unit is not a final answer, only a beginning to the answers. It is a model on which to build and expand, both for the teachers and the students of Kentucky.

Lynn Hodges
Environmental Education
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UNIT: SIGHTS & SOUNDS

LESSON 1: Natural Sounds

BASIC CONCEPTS:

Some natural sounds contribute to the quality of the environment.
Some natural sounds detract from the quality of the environment.

BEHAVIORAL OBJECTIVES:

(1) Upon completion of this lesson, the student will be able to list examples of natural sounds that contribute to the quality of the environment, and examples of natural sounds that detract from the quality of the environment, using their learning experiences as a basis for evaluation.

(2) Throughout this lesson the students will keep a journal of natural sounds which is to include:

1. Sound
2. Suspected source
3. Time heard
4. Date heard
5. Season heard

(3) Upon completion of this lesson, the student will have read articles and stories which emphasize and utilize natural sounds.

(4) The students will, after introduction to the use of natural sounds in literature, be able to write a story utilizing natural sound vocabularies.

(5) After an initial introduction to the scientific aspects of sound, the students will be able to recognize and use a decibel chart.

(6) After discussion of natural sounds, their sources, and their functions, the students will be able to compare natural sounds made by living organisms to human forms of communication and music.

(7) After exposure to experiences with natural sounds, the student will be able to identify pictures and other illustrations which are the sources of natural sounds.

(8) After the discussion on aesthetic uses of natural sounds, the students will illustrate a source of natural sounds through an art project.

(9) After exposure and discussion with respect to natural sounds, the students will be able to give examples of the effect of natural sounds on human behavior.

UNIT: SIGHTS & SOUNDS LESSON: 1

BASIC CONCEPTS:

Some natural sounds contribute to the quality of the environment.
Some natural sounds detract from the quality of the environment.

SUPPORTIVE CONCEPTS:	ACTIVITIES
Most frequently, natural sounds occur out-of-doors.	SHOW: a. Take students outside. Blindfold them or have them shut their eyes and listen to any natural sounds. b. Have the students imagine that they are living before their community was civilized. Tell them to list the natural sounds they would have heard.
Natural sounds can be imitated. Sources of natural sounds can be identified.	c. Show a film that has many natural sounds in it. d. Have the students imitate natural sounds. Pass out card with the sources of sounds on them, and have each student make the sound he thinks that source would make. Allow the other students to guess which source he is imitating. (i.e. bob-white, whippoorwill, a stream, the wind, thunder)
Sources of natural sounds are often the subjects for artistic media. Natural sound vocabularies are used in various types of literature.	e. Have the students bring in pictures of things in nature that make sounds. f. Read to the students or have the students read a story that uses sound words that correlate with natural sources. Use a decibel chart to show the range of natural sounds.
Natural sounds can be illustrated graphically with respect to intensity, pitch, and distance traveled.	DISCUSS:
Natural sounds made by living organisms serve a functional purpose.	a. What purposes do you think the natural sounds serve? Which sounds stand out? Which must you listen carefully to hear? How did you feel when you heard the sounds? Which sounds did you enjoy? Which did you not enjoy? Why? How many could you identify without seeing where they came from?
Some natural sounds are pleasing to humans. Some natural sounds are not pleasing to humans.	
Sources of natural sounds can be identified.	

UNIT: SIGHTS & SOUNDS LESSON 1: (continued)

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Natural sounds occur at different times of the day. Many natural sounds occur on a seasonal basis. Sources of natural sound can be identified. Natural sounds made by living organisms serve a functional purpose. Some natural sounds are pleasing to humans. Some natural sounds are not pleasing to humans. Sources of natural sound can be identified. Natural sounds occur at different times of the day. Many natural sounds occur on a seasonal basis. Some natural sounds are not pleasing to humans. Natural sounds can be imitated.	DISCUSS: (continued) a. (continued) How many of these sounds have you heard before? How often have you heard them? What time of day and season of the year would you hear these sounds? What different sounds would you expect to hear at different times? b. What sounds did you list that you might have heard before this area was settled? Which were pleasant sounds? Which were unpleasant? What were the sources of these sounds? Do you hear any of these sounds today? What happened to the ones you do not hear today? Could any of the sounds be danger signals? Which ones? What sound do we make to signal danger? Is it pleasant or unpleasant? What are some other danger signal sounds in nature? Are most of them pleasant or unpleasant? c. What sources of natural sounds did you see in the film? What sounds did they make? What other sounds did you hear? Did the time of day or season of the year affect the sounds? Which natural sounds in the film did you not like? Why? d. Were the natural sounds easy to imitate? How many could you imitate? Can you think of others to imitate?

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Some natural sounds are pleasing to humans. Some natural sounds are not pleasing to humans.	DISCUSS: (continued) d. (continued) Which of the sounds were pleasant sounds? Which of the sounds were unpleasant sounds? Why do some people think a sound is pleasant while other people think it is unpleasant?
Natural sounds can be illustrated with respect to intensity, pitch, and distance traveled.	e. Which of your pictures were examples of the loudest sounds? Which were examples of the softest sounds? Which sounds were pleasant? Which sounds were unpleasant? What are the different colors in the pictures? How do you think the colors relate to the sounds made? Do sounds and colors affect your feelings? How? Which pictures show motion related to sound? How does motion affect sound?
Sensitivity to sounds differs with different organisms.	
Some natural sounds are pleasing to humans. Some natural sounds are not pleasing to humans.	
Natural sound vocabularies are used in various types of literature.	f. Are all sounds the same? How do sounds differ? Which words name sounds? How often do you see these words used? How often do you hear them? What are some other sound words? How often do you use them?
	APPLY:
Natural sounds can be identified.	APPLICATION THROUGH MATHEMATICS: Have the students calculate the number of times a specific natural sound is heard within a given time period. From the individual information of each student, have the class determine the average time the sound is heard an hour, a day, and a week.
Natural sounds occur at different times of the day. Many natural sounds occur on a seasonal basis.	

SUPPORTIVE CONCEPTS:	ACTIVITIES:
	APPLICATION THROUGH MATHEMATICS: (continued)
Natural sounds can be illustrated graphically.	From the lists compiled by the students when they were outside, have the class calculate the average number of times the different sounds were heard. With this information, have the class make a chart, ranking the sounds in order of most frequent to least frequent.
Natural sounds can be illustrated graphically with respect to distance traveled.	Have the students estimate the distance from the source of a sound, both with their eyes open and eyes closed. Have them measure the actual distance and compare with their estimations. Have them compare and discuss why the eyes-open and eyes-closed estimations might differ greatly.
Most frequently, natural sounds occur out-of-doors. Natural sounds occur at different times of the day. Many natural sounds occur on a seasonal basis.	For one week, both at home and at school, have the students keep a journal of natural sounds heard at various times of the day. Using this information, have the students create a 24-hour clock, substituting natural sounds for numbers.
	APPLICATION THROUGH PHYSICAL EDUCATION:
Natural sounds can be imitated. Sources of natural sounds are often subjects for the artistic media.	Have the students pantomime or act out through a dance, skit, or charade the actions of a source of natural sound while making the sound. Have other students show at the same time the effect this sound has on people. (i.e. tornado - whirling, jumping, turning over objects, loud screaming noise; people reaction - holding ears, shaking, running, tumbling)
Most frequently, natural sounds occur out-of-doors.	Have the students hike into community, around school area to gather information on natural sounds.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Sources of natural sounds are often subjects for the artistic media.	APPLICATION THROUGH ART: Have the students paint or draw their favorate or unfavorite source of natural sound using any technique they wish. After drawing or painting, have the students make a paper sculpture of the source of the sound.
Some natural sounds are pleasing to humans. Sources of natural sounds can be identified.	Using the idea that colors and sounds are related, have the students attempt to paint sounds. Have them explain to the rest of the class the reason they chose specific colors for specific sounds. Have the students do at least one pleasant sound and one unpleasant sound.
	Have the class design and create a group mural to include sources of natural sounds, color associations with these sounds, and the natural environment of the sources and sounds.
	APPLICATION THROUGH LANGUAGE ARTS:
Natural sound vocabularies are used in various types of literature.	Have the students locate and bring to class articles, jokes, cartoons, and other information on natural sounds. Have the students report on these materials and collect them into one chapter of a class book. The chapter may be titled "Natural Sounds" or "Sounds in Nature." *(This class book can be supplemented by Art Activities and others, and can be added to by presentation of the units on Air, Water, Population and Land Use.)
Natural sounds can be imitated.	Have the students read and collect lists of materials that utilize natural sound words or imitate natural sounds.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Some natural sounds are pleasing to humans. Some natural sounds are not pleasing to humans.	APPLICATION THROUGH LANGUAGE ARTS: (continued) Have the students keep a journal of natural sounds they have heard. They should record when they heard the sound, where they heard the sound, how they would spell the sound, and how they felt when they heard the sound.
Natural sound vocabularies are used in various types of literature.	Have the students write the sounds they think the following sources would make: falling rain, frogs, stream, bluegay, crickets. (Teacher should add additional ones or allow students to add to the listing.)
Natural sounds made by living organisms serve a functional purpose.	Have the students determine which animals were named because of the sounds they make. Have the students imagine they are one of these animals, and have them write an imaginative story explaining why they make the sound. Optional Activity: Teacher may wish to introduce the term "onomatapoeia" to the class, and explain its meaning through the use of natural sounds. Allow students to find other examples both in natural and manmade sounds.
Natural sounds can be imitated. Sources for natural sounds are often the subject for the artistic media.	APPLICATION THROUGH MUSIC: Have the students examine patterns, rhythms, and the musical qualities of natural sounds. Have the students imagine that all natural sounds come from musical instruments and identify what instrument the natural sound is like. Discuss where man first might have originated the concepts of music and of musical instruments by listening to nature.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Natural sound vocabularies are used in various types of literature.	APPLICATION THROUGH MUSIC: (continued) Have the students list musical terms which are often used to describe natural sounds. Have them use musical terms to describe other natural sounds.
Many natural sounds occur on a seasonal basis. Natural sounds occur at different times of the day.	APPLICATION THROUGH SCIENCE: Have the students classify each natural sound by season. With this information have them determine the life activities for each season. Following the same pattern, have the students determine the life activities for each part of the day.
Natural sounds made by living organisms serve a functional purpose.	Have the students keep a record of all natural sounds and speculate on why a particular organism makes a specific sound. Have them verify their speculations through research.
Natural sounds can be illustrated graphically with respect to intensity, pitch, and distance traveled.	Given the information that the distance sound travels is affected by intensity, pitch, and medium of travel, have the students create an experiment to illustrate this information with natural sounds.
Natural sounds made by living organisms serve a functional purpose.	APPLICATION THROUGH SOCIAL STUDIES: A parallel can be drawn between animal sounds and human sounds and how animal sounds communicate to humans. Have the students develop a list of animal sounds and what they mean.

UNIT: SIGHTS & SOUNDS LESSON 1: (continued)

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Some natural sounds are pleasing to humans. Some natural sounds are not pleasing to humans. Natural sounds vary with different geographical regions.	APPLICATION THROUGH SOCIAL STUDIES: (continued) Have the students determine what effect natural sounds have on human behavior, especially at night or when humans are alone. Have the students classify different geographical regions according to the natural sounds they would expect to hear in that region.

DECIBEL CHART

DECIBELS (db.)	EXAMPLES OF TYPICAL SOUNDS & DECIBEL RANGE:	PUT YOUR LOCAL SOUNDS IN HERE:
0-10	COMPLETE SILENCE, SOFTEST SOUNDS	
10-20	RUSTLE OF GROWING LEAVES	
20-30	WHISPER FROM FOUR FEET	
30-40	NORMAL CLASSROOM ACTIVITY	
40-50	NORMAL CONVERSATION	
50-60	NOISY STORE	

DECIBEL CHART (continued)

DECIBELS (db.)	EXAMPLES OF TYPICAL SOUNDS & DECIBEL RANGE:	PUT YOUR LOCAL SOUNDS IN HERE:
60-70	TYPING IN SMALL OFFICE	
70-80	HEAVY TRAFFIC	
80-90	FACTORY	
90-100	SEMI-TRAILER TRUCK PASSING	
110-120	LOUD THUNDER	
120-130	THRESHOLD OF FEELING	
130-up	PAINFUL	

UNIT: SIGHTS & SOUNDS

LESSON 2: Manmade Sounds

BASIC CONCEPTS:

Some manmade sounds contribute to the quality of the environment.
Some manmade sounds detract from the quality of the environment.

BEHAVIORAL OBJECTIVES:

(1) Upon completion of this lesson, the student will be able to list examples of manmade sounds that contribute to the quality of the environment, and examples of manmade sounds that detract from the quality of the environment, using their learning experiences as a basis for evaluation.

(2) Upon discussion of manmade sounds, the student will be able to locate sources of manmade "noise pollution," recommend possible solutions, determine cost of implementing solutions, and write a complete report of the problem and solution.

(3) Upon completion of this lesson, the student will have read articles and stories which emphasize and utilize manmade sounds.

(4) The students will, after introduction to the use of manmade sounds in literature, be able to write a story utilizing manmade sound vocabularies.

(5) After initial introduction to the scientific aspects of sound, the students will be able to recognize and use a decibel chart.

(6) After discussion of manmade sounds, their sources, and their functions, the students will be able to compare their local community to areas of noise pollution and distinguish between manmade sounds classified as "noise pollution" and manmade sounds classified as "music." This differentiation will be based on patterns, rhythms, and quality of the manmade sounds.

(7) After exposure to experiences with manmade sounds, the student will be able to identify pictures and other illustrations which are the sources of manmade sounds.

(8) After the discussion on aesthetic uses of manmade sounds, the students will illustrate a source of manmade sounds, the students will illustrate a source of manmade sounds through an art project.

(9) After exposure and discussion with respect to manmade sounds, the students will be able to give examples of the effect of manmade sounds on human behavior.

UNIT: SIGHTS & SOUNDS LESSON 2:

BASIC CONCEPTS:

Some manmade sounds contribute to the quality of the environment.
Some manmade sounds detract from the quality of the environment.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans. Sources of manmade sound can be identified. Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans. The unit of sound measurement is the decibel.	SHOW: a. Take students on a walking tour of the halls of the school and ask them to list the sounds they hear. Take students outside and have them make a list of the manmade sounds they hear. b. Have the students imagine that they are in an airport. Have them tell the sounds they hear. Have them show how the sound affects the people by letting one student be a jet plane, and another student be a person that the plane is flying over on take-off. Have the students imagine that they are in a record shop. Have them tell the sounds they hear. c. Show a film that has manmade sounds in it, or has as its theme, manmade sounds. d. Have students bring in and collect pictures of sources of manmade. Each student may make an individual collection or the class as a whole may make a group collection. e. Bring a recording or record to class of pleasant and unpleasant manmade sounds. f. Show students a decibel chart or a chart of the ear, explaining how we hear. Have students do additional research on these topics and give reports to the class.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Sources of manmade sound can be identified. Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans. Manmade sounds which are harmful to people or to the environment are classified as "noise pollution." Noise pollution can be corrected. Manmade sounds which are harmful to people or to the environment are classified as "noise pollution." Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans. The unit of sound measurement is the decibel.	DISCUSS: a. What sounds did you list that were pleasant sounds? Which did you think were unpleasant? Are all manmade sounds pleasant? Are all manmade sounds unpleasant? b. Would you rather listen to the sounds of an airport or listen to the sounds of a record shop? Why? What might happen if you had to listen to jet planes taking off every day? c. What were the manmade sounds in the film? How often do you hear these sounds? Which sounds do you think helped the environment? Which sounds do you think harmed the environment? How can some of the harmful ones be stopped? Are your favorite sounds ones which help the environment or harm the environment? d. Which of the pictures are examples of manmade sounds that help the environment? Which are examples of manmade sounds that harm the environment? How can manmade sounds that harm the environment hurt you? e. Which of the sounds did you like on the recording? Which ones did you not like? Why did you like some and dislike others? Name some sounds that could hurt your ears. What would happen if you had to listen to these sounds for a long period of time. f. How do sounds travel from outside the ear to inside the ear? What would be the result of having the ear canal damaged by sound? How is sound measured? How are all sounds alike? How do sounds differ? Which sounds are most harmful to the environment and to people?

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans.	APPLY: APPLICATION THROUGH MATHEMATICS: From the lists of sounds collected by the students, have students classify the sounds into pleasant sounds & unpleasant sounds. With this data, have them place the sounds on a decibel chart. (Students will approximate the position of the sound.) Have students answer the questions: Do pleasant or non-harmful sounds fall into the high or low decibel range? Do unpleasant or harmful sounds fall into the high or low decibel range?
The unit of sound measurement is the decibel.	Have the students create their own decibel chart for the sounds they have listed.
Manmade sounds can be represented graphically with respect to intensity, pitch, and distance traveled.	Have the students use ratios or fractions to compare the number of pleasant or non-harmful sounds to the number of unpleasant or harmful sounds they normally hear.
Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans.	APPLICATION THROUGH PHYSICAL EDUCATION: Have the students pantomime, act-out, or create a dance, skit or charade which represents a source of manmade sounds. Have other students show the effect the sound would have on people. Allow the other students to guess what is happening. Have the students hike into the immediate to gather information on manmade sounds.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Manmade sounds are often used in the musical art, as well as in the area of graphic art.	APPLICATION THROUGH ART:
Manmade sound is often used in the musical art, as well as in the area of graphic art.	Have the students paint or draw [illegible]ces of manmade sounds and people reacting to these sounds. They may wish to continue into advanced projects such as clay modeling, ceramincs, or paper sculpture, using human reaction to manmade sounds or sources of manmade sounds as their topics.
Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans.	Have the students create a group mural showing various types of manmade sound. Have them include people reacting to these sounds.
	APPLICATION THROUGH LANGUAGE ARTS:
Manmade sounds are often used in literature.	Have the students bring in articles, stories, cartoons, and other information about manmade sounds. These sources should include information about pleasant sounds such as music, as well as information about noise pollution. Have the students collect these and report on them to the class. Have the class collect and compile one chapter of a class book based on manmade sounds. The chapter might be titled "Manmade Sounds" or "The Sounds of Man." (This class book can be supplemented by Art Activities and others, and can be added to by presentation of the units on Air, Water, Population, and Land Use.)
Manmade sounds which are harmful to the environment are classified as "noise pollution."	
Manmade sounds can be imitated.	Have the students read and collect a list of words that are suppose to represent manmade sounds. Have them identify which of these sounds may be harmful and which may be non-harmful.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Manmade sounds are often used in literature.	APPLICATION THROUGH LANGUAGE ARTS: (continued) Ask the students to spell the sounds made by the following: (1) locomotive (4) horn (2) siren (5) drum (3) jet-plane (6) piano (The teacher should add to this list. There are no absolute answers to how to spell the sounds made by these sources. Spellings will differ among students.)
Manmade sounds can be imitated.	
Manmade sounds are often used in literature. Manmade sounds which are harmful to the environment are classified as "noise pollution."	Have the students write stories using various sound vocabularies that represent manmade sounds. Tell the students to show manmade sound being both harmful and unpleasant and helpful or pleasant in their stories.
Manmade sounds are often used in the musical art, as well as in the area of graphic art.	APPLICATION THROUGH MUSIC: Have the students compare the different types of music to other manmade sounds. (i.e. a drumfoll to a jackhammer.)
Manmade sounds which are harmful to the environment are classified as "noise pollution."	Have the students discuss and write why music is different from the other manmade sounds that we classify as noise.
Some manmade sounds are pleasing to humans. Some manmade sounds are not pleasing to humans.	Have the students do research on music to find information on music influencing human behavior. Have the students list where music is often heard today, and discuss why music is used in these places.

UNIT: SIGHTS & SOUNDS: LESSON 2: (continued)

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Manmade sounds can be illustrated graphically with respect to intensity, pitch, and distance traveled.	APPLICATION THROUGH SCIENCE: By using a tuning fork, loud music, stringed instrument or other means of demonstration, show relationship between sound and vibration. Having given the students this information, allow them to devise an experiment which would illustrate the effect sound and vibration caused by sound would have on various structures such as buildings and bridges.
Sound effects living and non-living material.	Have the students attempt to locate in the school and local libraries, information on the effect of sound on living organisms.
	Have the students plant several plants. With one set, have them play continuous, soft, "easy listening" music. With a second set, have them play continuous, loud, "hard rock" music. Play no music to the third set. After the plants have matured, compare the growth-rates, size, general health, and color. (It may not be possible to play the music on a continuous basis. It may be necessary to play music on a daily basis, or allow students to take plants home to play music. The time factor of this experiment can be limited by using mature plants rather than seed planting, and compare after a specific period of time. Suggested minimum is one month.)

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Sources of manmade sounds can be identified. Manmade sounds which are harmful to the environment are classified as "noise pollution." Noise pollution can be corrected. Man affects the environment by political, social, and economic action.	APPLICATION THROUGH SOCIAL STUDIES: Using a city map, have the students mark the centers of noise pollution, mark the causes of the noise, and the time of day it reaches maximum. Have the students locate noise pollution centers in and around the school. Allow them to recommend ways the problem could be corrected. Have them determine the cost of correcting the problem. Have the students find out the names of the people who could help solve the problem, either politically or financially. (These persons might include teachers, principal, superintendent, local officials, P.T.A., and civic groups.) With this information have the students prepare a report to include: (1) source of problem (2) why it needs to be corrected (3) various ways it could be corrected (4) cost involved in correcting problem (5) benefits when problem is solved. Ask people on list to attend class and talk to the students about the problem. Allow the students to ask questions to class visitors. Send copies of the class report to persons on the list. Have the students write a letter asking for help with the problem and a reply to the report. Have the students actually attempt to get the noise problem solved.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Man affects the environment by political, social, and economic action.	SOME TYPICAL SOURCES OF NOISE POLLUTION AROUND SCHOOLS: faulty equipment (i.e., pencil sharpeners, desks, doors, lockers) heavy traffic construction work near by railroads people. Have the students examine laws which are directed towards noise prevention, such as mufflers-on-cars law.

UNIT: SIGHTS & SOUNDS

LESSON 3: Natural Sights

BASIC CONCEPTS:

Some natural sights contribute to the quality of the environment.
Some natural sights detract from the quality of the environment.

BEHAVIORAL OBJECTIVES:

(1) Upon completion of this lesson, the student will be able to list examples of natural sights that contribute to the quality of the environment, and examples of natural sights that detract from the quality of the environment, using their learning experiences as a basis for evaluation.

(2) Upon discussion of natural sights, the student will conduct a project designed to enrich the inside environment through natural sights.

(3) Upon completion of this lesson, the student will have read articles and stories which emphasize natural settings and conflicts.

(4) The students will, after introduction to the use of natural sights in literature, be able to write a story illustrating the need for natural sights.

(5) After initial experiences with natural sights, the students will research and report on man's involvement in the preservation of natural sights.

(6) After discussion of natural sights, their textures, lines, shapes, and tones, the students will be able to give examples of how man has patterned many of his inventions after natural sights.

(7) After exposure to experiences with natural sights, the student will be able to match correctly natural sights with natural sounds.

(8) After the discussion on aesthetic uses of natural sights, the students will illustrate a source of natural sights through an art project.

(9) After exposure and discussion with respect to natural sights, the students will be able to give examples of the effect of natural sights on human behavior.

UNIT: SIGHTS AND SOUNDS LESSON 3

BASIC CONCEPTS:

Some natural sights contribute to the quality of the environment.
Some natural sights detract from the quality of the environment.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Most natural sights occur out of doors. Natural sights are used to enrich inside environments. Natural sights differ in their appeal to different individuals.	SHOW: a. Take students on a walking tour of the school and grounds around the school. Have them make a list of natural sights they see. Tell the students to list the natural sights under two headings: (1) Natural sights that make the areas pleasant (2) Natural sights that make the unpleasant. b. Have the students imagine that they can design a new planet. Have them make a list of the natural sights from Earth that they would not want on their planet. c. Show a film on natural sights. d. Have the students bring in pictures of natural scenes, landscapes, wildlife, and insects. Ask each student to bring in as many examples of natural sights as they can find. Tell them to bring in ones that they like and ones that they do not like. e. Using a recording of natural sounds, have the students attempt to identify as many of the natural sights associated with the sounds as they can. f. Have the students research and report to the class information on topics such as: "How Men Try to Preserve National Beauty" "Local Projects for Saving Nature" "Naturalists" "Hobbies in Nature"
Natural sights are often used as topics for art. Natural sights differ in their appeal to different individuals.	
Natural sights corelate with natural sounds.	
Nature is one of the classic themes of literature.	

SUPPORTIVE CONCEPTS:

Natural sights differ in their appeal to different individuals.

Natural sights decrease when population increases.
Natural sights are used to enrich inside environments.

Natural sights are often used as art topics.

Natural sights corelate with natural sounds.

Natural sights differ in their appeal to different individuals.

ACTIVITIES:

DISCUSS:

a. Have students tell the items on their lists. If some students listed "sights" under pleasant and others listed the same sight under unpleasant, let them discuss why they considered it in the way they did.

   Why are most lists of outside natural sights longer than most lists of inside natural sights? How could the inside environment be made better? How could the outside environment be made better?

b. What were the natural sights on your planet? What were the natural sights from Earth that you did not want? Why?

c. What were the natural sights on the film that helped or contributed to the environment? What were the ones that did not help or contribute to the environment?

d. Did you collect any natural sights that you liked but someone else didn't? Which ones? Why do you think some people will like a natural sight but others will not like it? Can you think of some other examples?

e. What natural sights and sounds fit together? Do natural sounds that you like always mean that you will like the natural sight? Why?

f. How many ways can you think of that people help nature? Why do people like many natural sights? What are the natural sights good for? Describe Earth without natural sights. Would you want to live here? Why?

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Natural sight decrease as population increases. Natural sights are used to enrich inside environments. Natural sights vary according to locality and season. Natural sights differ in their appeal to different individuals. Natural sights decrease as population increases. Structures composing natural sights have a definable fraction.	**APPLY:** **APPLICATION THROUGH MATHEMATICS:** Have the students count the number of natural sights in a city scene and in a country scene. Using this information, have the students derive a ratio which compares natural sights in the city to natural sights in the country. Have the students determine the cost of decorating the inside environment of the school or classroom with natural decorations. (i.e. flowers, ferns, natural stone, etc.) Have the students conduct a seasonal count of natural sights that contribute to the quality of the environment. Have them determine which season has the least number. Have the students calculate the percentage of the lesser season to the greater season. Using listings of natural sights that add to the environment and natural sights that detract from the environment, have the students compare the two categories by using fractions. Either through a microscope or with regular examination, have the students study the geometric shapes that make up the structures in nature.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Natural sights and object affect human behavior.	APPLICATION THROUGH PHYSICAL EDUCATION: Have the students pantomime, act-out, or create a dance, skit, or charge using natural sights as the topic. Have the other students show the effect this sight has on people. (i.e. tornado-natural sight, fear-human reaction)
Natural sights increase as population decreases.	Have the students hike into the community and rural areas to observe different natural sights.
Natural settings are one of the classical settings in literature and art. Natural sights are often used as art topics. Natural sights increase as population decreases. Natural sights differ in their appeal to different individuals.	APPLICATION THROUGH ART: Have the students paint or draw scenes of nature. Develop a nature art show to display the art work to other classes, teachers, and parents. Have half of the class create a group mural which emphasizes natural sights that contribute to the environment. Allow the other half to add natural and manmade items to the mural which detract from the environment. Have the class discuss the artistic effect of the mural before and after the additions were made. Discuss realism in art.
Structures of natural sights have a definable function.	Have the students study lines, textures, and tones of color in natural sights, and use this information to create a project.
Natural settings are one of the classical settings in literature and art.	APPLICATION THROUGH LANGUAGE ARTS: Have students read articles, short stories, and essays that have as their theme, nature and the preservation of nature. Have students write a fictional story,

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Man versus Nature is a classical conflict in literature.	APPLICATION THROUGH LANGUAGE ARTS: (continued) "Concrete World," in which natural sights have been eliminated. Have the students write about how people react to the situation, and how they substituted manmade objects for natural objects.
Natural settings are one of the classical settings in literature and art.	Have the students collect pictures, articles and other information on natural sights. Allow the students to edit this information, and compile one chapter of a class book. The chapter may be titled "Natural Sights" or "Sights in Nature," (This book can be supplemented by presentation of units on Air, Water, Population, and Land Use) Have the students list natural descriptive words and phrases, and write a short story using many of these as possible. Have them determine which describe good qualities in nature and which describe bad qualities in nature. (i.e. - mean as a snake - bad quality busy as a bee - good quality)
Structures of natural sights have a definable function.	APPLICATION THROUGH SCIENCE: Have the students list the different colors found in natural sights. Have them determine what causes these colors, their function, and what causes them to change during different seasons.
Many manmade inventions are the result of close examination of natural sights and phenomena.	Have students examine the different shapes in natural sights. Have the students determine the reasons these shapes are beneficial or functional. Discuss adaption to the environment, and how man has patterned many manmade objects after nature.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
	APPLICATION THROUGH SOCIAL STUDIES:
Many manmade inventions are the result of close examination of natural sights and phenomena.	Have students attempt to support the idea that nature is the best inventor by comparing many of the important manmade inventions to similar items in nature.
Natural sights decrease when population increases.	Allow students to examine the laws that were drafted for the protection of nature. Have them suggest additional ones that would be beneficial.
Natural sights affect human behavior.	Have students read and discuss information that records the effect nature has on man, and man has on nature.
Natural sights differ in their appeal to different individuals. Natural sights are used to enrich inside environments.	Have the students plan and conduct a school project that has as its theme, "Bringing Nature into Every Classroom." Have the class bring in suggestions, discuss why nature should be in class, vote on preferences, determine the cost factors, list people and organizations that could help with the funding, and finally present the idea to other students, teacher, and administrators. Have the students finalize their plan and put it into action. Discuss with the students the concepts of voting, class cooperation, necessity of community support, researching to obtain information and problems of actual implementation. Use this activity to explore "How Government Works" or "How to Work Towards a Major Goal."
	APPLICATION THROUGH MUSIC:
Natural sights are often used as art topics.	Have students locate and listen to various musical pieces which use natural sights as their theme. (i.e. Blue Danube)

UNIT: SIGHTS & SOUNDS

LESSON 4: Manmade Sights

BASIC CONCEPTS:

Some manmade sights contribute to the quality of the environment.
Some manmade sights detract from the quality of the environment.

BEHAVIORAL OBJECTIVES:

(1) Upon completion of this lesson, the student will be able to list examples of manmade sights that contribute to the quality of the environment, and examples of manmade sights that detract from the quality of the environment, using their learning experiences as a basis for evaluation.

(2) Upon discussion of the proper disposal of by-products of man's use, the students will write and illustrate a booklet to be distributed to lower elementary grades.

(3) Upon completion of this lesson, the student will have read articles and stories which emphasize the positive and negative qualities of manmade sights.

(4) The students will, after introduction to the use of manmade sights in literature, be able to write an essay on either the positive uses of manmade sights, or negative uses of manmade sights.

(5) After initial experiences and discussion on manmade sights, the students will write letters for additional information and attitudes to various organizations and individuals.

(6) After discussion on the positive and negative uses of manmade sights, the students will be able to identify examples of both from the local community.

(7) After exposure to experiences with manmade sights, the student will be able to match correctly manmade sights with manmade sounds.

(8) After the discussion on aesthetic uses of manmade sights, the students will be able to give examples of the effect of manmade sights on human behavior.

UNIT: SIGHTS & SOUNDS LESSON 4

BASIC CONCEPTS:

Some manmade sights contribute to the quality of the environment.
Some manmade sights detract from the quality of the environment.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Man changes his environment through various manmade sights.	SHOW: a. Take students around the immediate school environment, both inside and outside. Have them make a list of sights made by man that add to the environment and sights made by man that detract from the environment. If possible, take students to areas beyond immediate school to see examples of manmade structures and landscapes that add to the environment. (i.e. - parks, office buildings, museums, lawns, libraries) Take students to areas to see examples of manmade influences which detract from the environment. (i.e. littered areas, dumps, overcrowded building sites, billboards)
As population increases, manmade sights decrease.	b. Show students models of any of the above.
Man has total control over manmade sights.	Bring wastepaper, cardboard boxes, and other clutter-items to class, and scatter them throughout the classroom. Make it difficult for students to get to their desks, to the door, or to see out of the windows.
Manmade sights affect human behavior.	Have the students role-play being a building. Mark off a square 6 ft. x 6 ft. See how many student/buildings can be squeezed into the space. Allow other students to be trees, flowers, and other natural sights. Have these students stand in the square. As each building is added, some of the trees and flowers must leave. Allow class to decide the proper distribution of trees, flowers and buildings that would make a good environment.
Manmade sights replace natural sights.	

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Manmade sights are either for the use of man, or the by-products of man's use.	c. Show a film about manmade sights. d. Have students bring in various pictures of manmade sights. Ask them to bring examples of manmade sights that add to the environment and manmade sights that hurt the environment. e. Have students bring to class articles, and stories about manmade sights, both good and bad.
Man's use of the environment is a major political, literary, and scientific topic of the '70's.	Have a guest speaker come to the class to talk about how manmade sights are being used to enrich the environment rather than harm it. (i.e. city planner, architect, member of city zoning board, local construction people.)
Man has total control over manmade sights.	DISCUSS:
Manmade sights replace natural sights.	a. What types of things did you see in the areas visited? Was everything good? Was everything bad? Give examples of each that you listed. How did you feel about some of these things? Who is responsible for the things we saw? How often do you see these things?
Manmade sights affect human behavior.	b. What was good or bad about the model you saw?
Disposal of the by-products of man's use is necessary.	How did you feel when you were boxed into your seat? How would you feel if you had to live the rest of your life boxed in? What things box people in cities?
Manmade sights affect human behavior.	c. What good things did you see in the film? What bad things? Did any of the things you saw remind you of things in our community? What were these?
As population increases, manmade sights increase.	d. What did all of the pictures you brought in have in common? Which of the pictures did you like best? Why? Which of the pictures did you like least? Why?
Manmade sights replace natural sights.	
Manmade sights are either for the use of man or are the by-products of man's use.	

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Man's use of the environment is a major political, literary and scientific topic of the '70's.	e. What was the important information that you got from the articles and stories? What problems did they point out? How can some of these problems be solved? Do we have any of these problems?
Man has total control over manmade sights.	What was the most important thing you think our guest speaker said? Did you learn anything new? What? Did he offer any suggestions to problems? What were they?
	APPLY:
	APPLICATION THROUGH MATHEMATICS:
Disposal is necessary for the by-products of man's use.	Using a city map, have the students compare the size of the city dumps to the size of the total city.
Litter is improper disposal of by-products.	Have the students pick up all the litter in a specific area. Have them keep a record of the time it takes them. Have them calculate how long it would take just one student to pick up all of the litter. Have them calculate how many hours a year one person would have to work to keep the school yard clean. If this person was paid $2.00/hour, how much would it cost?
Paper is the most common form of litter.	Weigh all of the litter collected. How much would it cost, based on the above activity, to pick up one pound of litter? Have the students estimate the weight of all the school yard litter for one year.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Man has total control over manmade sights.	APPLICATION THROUGH MATHEMATICS: (continued) Given a specific area, have the students count the number of good manmade sights, and have the students count the number of bad manmade sights. Have them use ratio to formulate statistics for different areas.
Paper is the most common form of litter.	Given the information that 17 trees are used for each ton of paper, have the students determine how much paper and how many trees the class uses in one year.
Litter is the improper disposal of by-products. Paper is the most common form of litter. As population increases, manmade sights increase.	APPLICATION THROUGH PHYSICAL EDUCATION: In order to help clean up a manmade problem, litter, have class organize a litter scavenger hunt. A litter relay can be organized for a similar purpose. Have the students hike into areas of the community to see good and bad examples of manmade sights.
Man has total control over manmade sights. Art is an essential part of manmade sights.	APPLICATION THROUGH ART: Have the students design a playground, park or building that would contribute to the quality of the environment. Have the students identify local architecture that does not fit into the environment. Have the students locate and identify local misuses of art that detracts from the environment. (i.e. billboards)

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Art is an essential part of manmade sights.	APPLICATION THROUGH ART: (continued) Have the students design and construct an art project using materials that are normally thrown away such as bottles, cans, newspapers, and boxes.
Man's use of the environment is a major political literary, and scientific topic of the '70's.	APPLICATION THROUGH LANGUAGE ARTS: Have the students choose to write an essay on one of the following: "Manmade sights that fit into Nature" "Manmade sights that do not fit into nature"
Man has total control over manmade sights.	Have the students write letters to various organizations, businessmen and elected officials requesting information on activities concerned with the environment.
Litter is improper disposal of by-products. Paper is the most common form of litter.	Have studencs write and illustrate a booklet to be given to the lower elementary children that explains and shows good and bad environmental habits. (i.e. Letters from a Litterbug)
Man's use of the environment is a major political, literary, and scientific topic of the'70's.	Have students bring in various stories, articles, and other information about manmade sights. Have them edit and collect this information into one chapter of a class book. The chapter title may be "Manmade Sights" or "Sights Made by Man." (This book may be supplemented by presentation of units on Air, Water, and Population.

SUPPORTIVE CONCEPTS:	ACTIVITIES:
Manmade sights replace natural sights.	APPLICATION THROUGH SCIENCE:
Disposal of the by-products of man's use is necessary.	Trace the route of an insect from a local dumping area to a home. Discuss the transfer of disease by this method.
Manmade sights replace natural sights.	Discuss the term "recycle." Have the students put several manmade objects into the soil. (i.e. tin can, pencil, piece of paper) Have them check on the breakdown of these objects over a period of time.
As population increases, manmade sights increase.	Using a balance in nature chart, have the students show what happens when this balance is upset by a manmade structure. Have them determine how man can build his structures without upsetting the balance of nature.
Manmade sights replace natural sights.	By examining the functions and benefits to man of green plants, have the students predict what would happen if all green plants were replaced by manmade sights.
Man has total control over manmade sights.	APPLICATION THROUGH SOCIAL STUDIES:
Man's use of the environment is a major political literary, and scientific topic of the '70's.	Have the students examine local, state and federal laws concerning manmade sights. (Suggested references are zoning laws, refuse laws, billboard and right-of-way laws.)

SUPPORTIVE CONCEPTS:	ACTIVITIES:
	APPLICATION THROUGH SOCIAL STUDIES: (continued)
Man has total control over manmade sights. Manmade sights are either for the use of man, or by-products of man's use.	Have the students identify local sources of "visual" pollution. Have them research and investigate who is responsible for the problem and who has the responsibility and authority to correct the problem.
Manmade sights affect human behavior.	Organize an Environmental Action group among the students. Have them write a simple constitution and conduct projects throughout the year.
Man's use of the environment is a major political literary, and scientific topic of the '70's.	Have the students contact Congressmen, Senators and Representatives from the area. Ask them about specific environmental problems and projects for the area and state.
Manmade sights affect human behavior.	Have the students list how "city" people are different from "non-city" people. Have them to discuss and write why the environment of these people would affect their attitudes and ideals.
Disposal of the by-products of man's use is necessary.	Have the students gather information on taxes. Have them calculate how much of each tax dollar is spent on keeping the area clean. Have them calculate how much is spent totally.